Sustaining Mobility During Boston's Central Artery/ Third Harbor Tunnel Project

Presented by:

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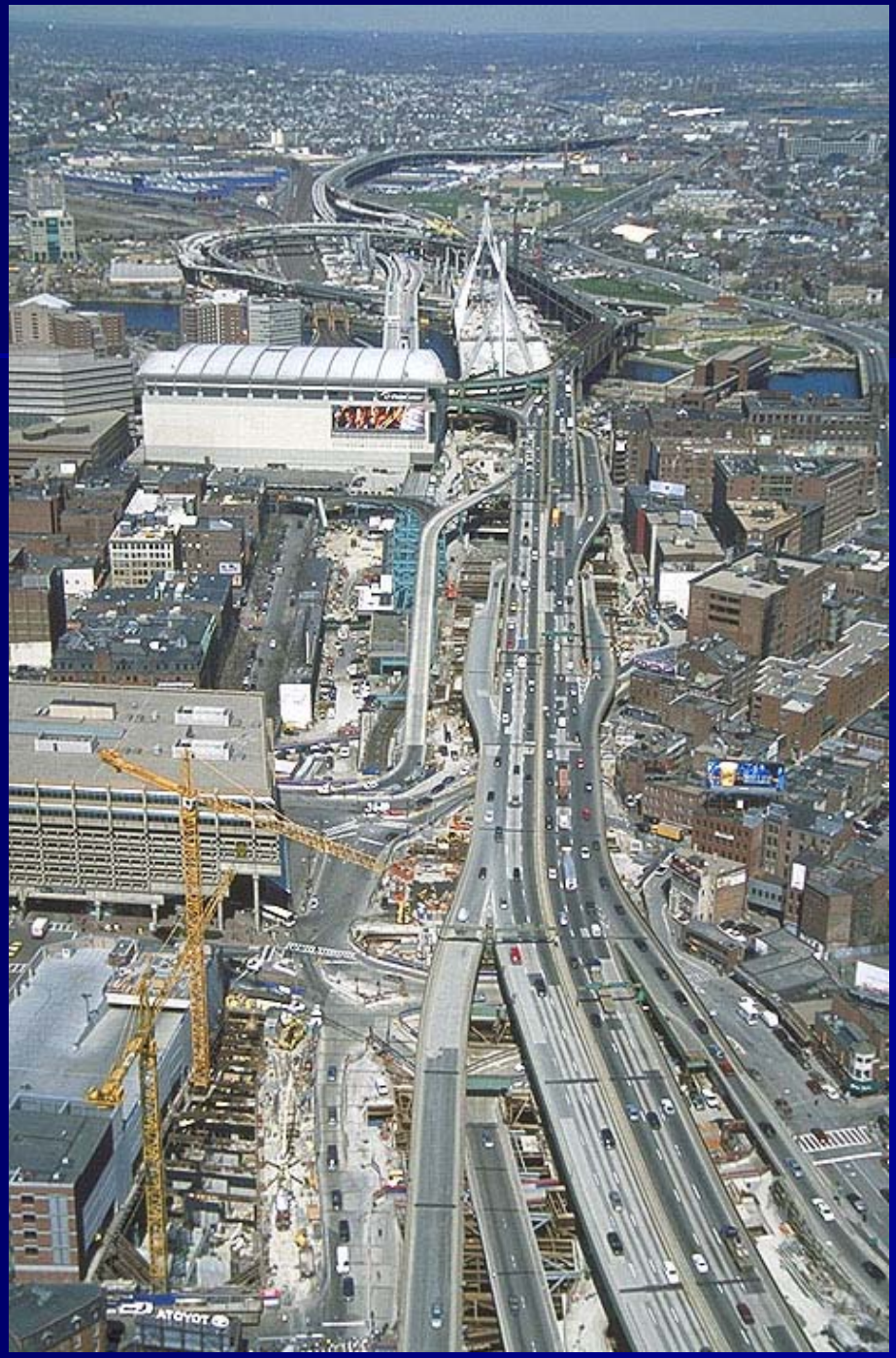
Boston Transportation Department

Boston's Central Artery/Third Harbor Tunnel Project

- Project Description
- Mobility Goals
- Mobility Challenges
- Strategies
- Tools and Tactics
- Results

Project Description:

Central Artery/Third Harbor Tunnel


TOYOTA

Project Description:

Central Artery/Third Harbor Tunnel

- Elevated Central Artery designed for 75,000 vehicles per day when opened in 1959
- Carrying 190,000 by early 1990s
- Traffic jams projected to last 16 hours a day by 2010
- Cross harbor tunnel at inadequate

Project Description:

Central Artery/Third Harbor Tunnel

Project Description:

Map at Completion

- I-93 Central Artery- rebuild 3.5 miles (1.5 miles tunnel)
- I-90 MassPike extended 3 miles (2.0 miles tunnel) to Logan Airport
- 4 major highway interchanges

Project Description:

Central Artery/Third Harbor Tunnel

- 161 lane miles
- 7.5 mile corridor, half in tunnels
- 4 major highway interchanges
- I-93 Central Artery – 245,000 ADT by 2010
- I-90 Ted Williams Tunnel – 98,000 ADT by 2010

Mobility Goals

- Roadway Traffic
- Public Transit
- Pedestrians
- Abutter Access
- Tour Busses and Trolleys

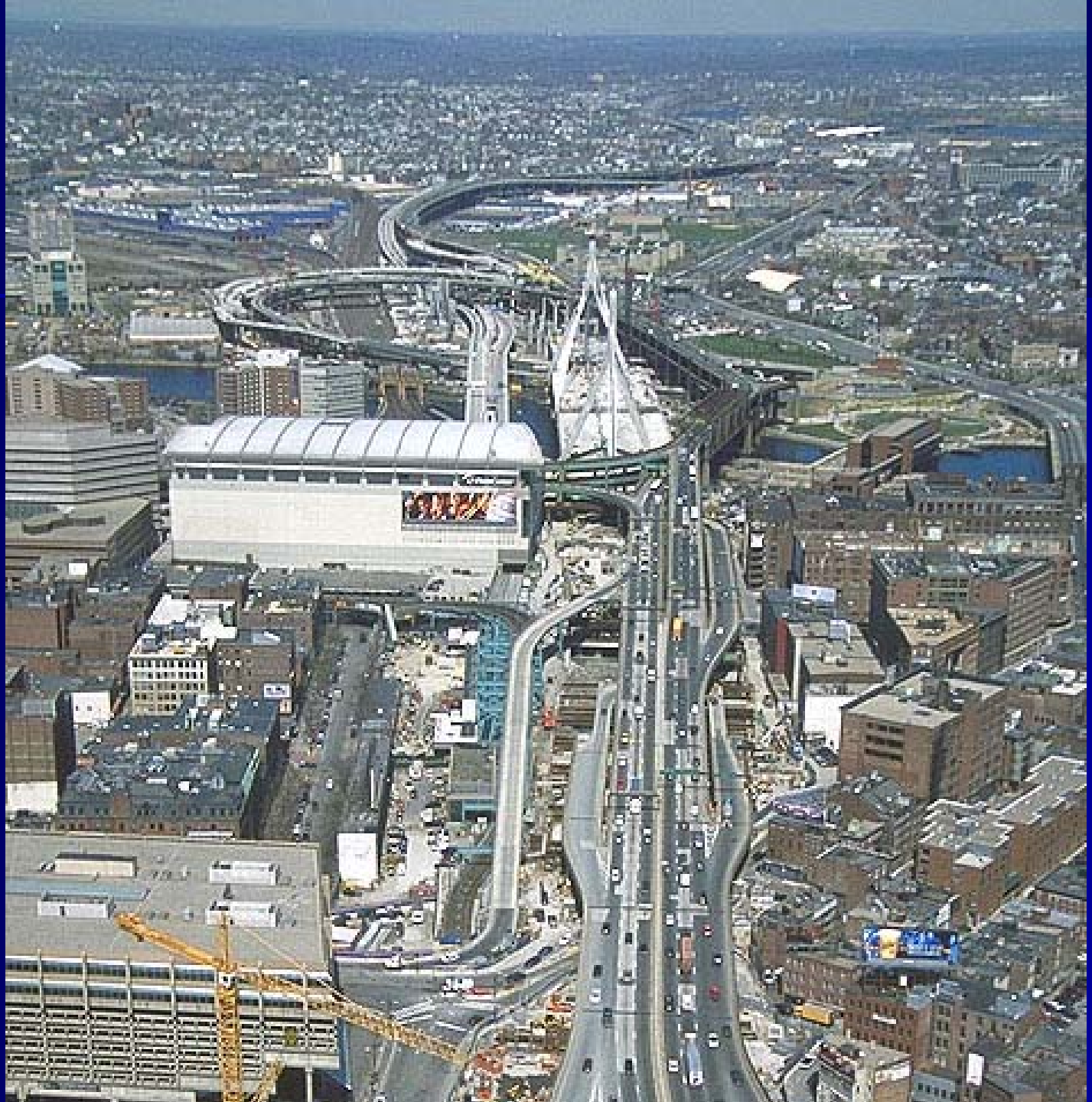
Mobility Challenges

- Building tunnel under operating elevated highway
- Transit lines and commuter rail hubs crisscross project work zones
- High volume pedestrian corridors
- Construction adjacent to homes, parks and businesses
- Tourists flock to areas adjacent to CAT corridor

Mobility Challenge:

Central Artery/Third Harbor Tunnel

Aerial Perspective from above the Fleet Center

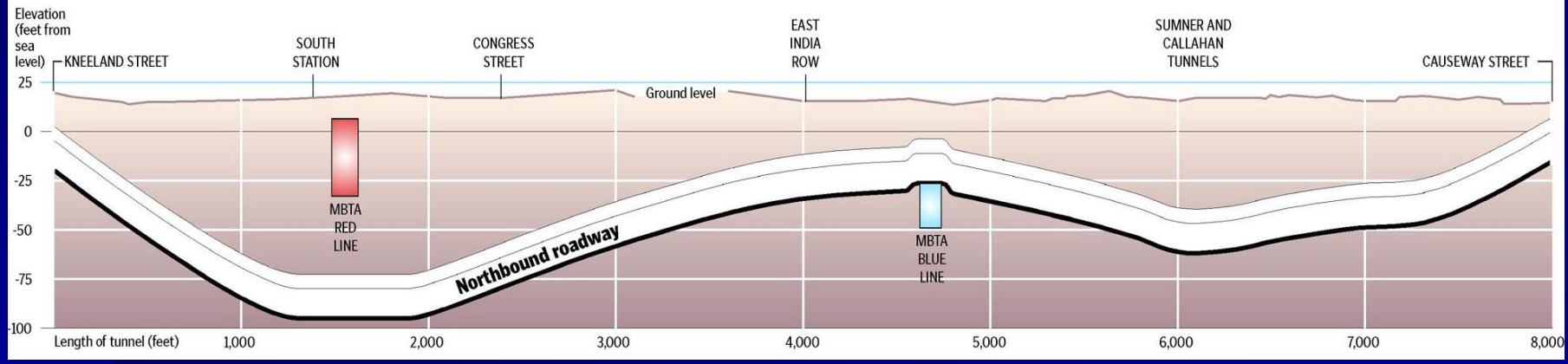


Cross-section of the Depressed Central Artery

The subterranean Central Artery must dip deep under the MBTA's Red Line at South Station and rise over the Blue Line near Aquarium Station.

Since 1988, some 1,600 test borings – from 20 to 200 feet deep – have been taken in preparation for building the Ted Williams Tunnel and Central Artery portions of the Big Dig. Boston was punctured about every 100 feet along the path of the project.

NOTE: Slopes appear steeper than they will actually be because horizontal and vertical axes have different scales.

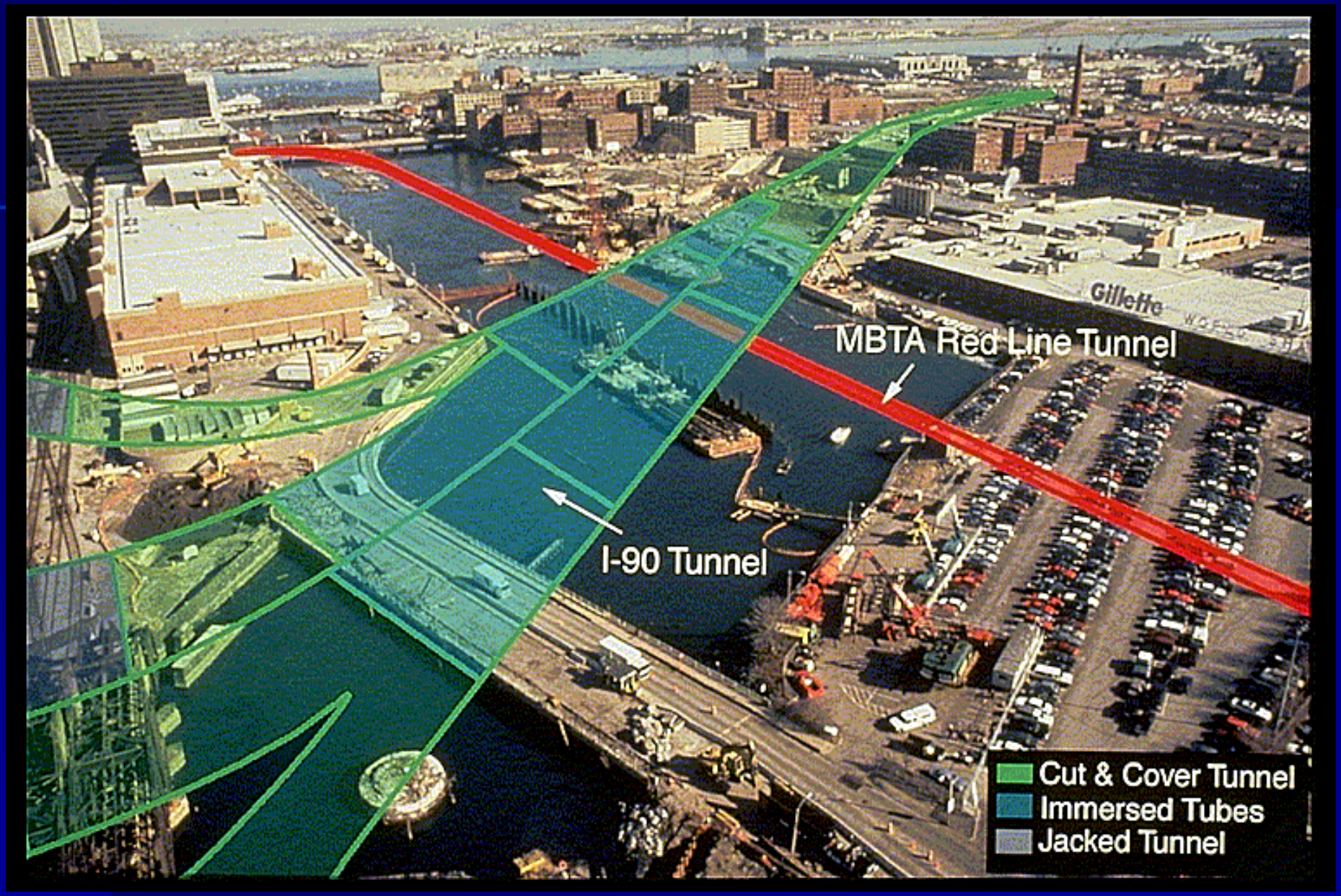


Mobility Challenges

- 16 million cubic yards of dirt moved
- 541,000 truckloads
- 3.8 million cubic yards of concrete
- 26,000 linear feet of slurry walls up to 120 feet deep
- 150 cranes project wide at peak construction
- 29 miles of utilities moved

Mobility Challenges

- 5,000 construction workers at peak
- 118 separate construction contracts
- $3,000,000 work per day at peak
- Multiples impact zones simultaneously


Gillette
MBTA Red Line Tunnel
I-90 Tunnel
Cut & Cover Tunnel
Immersed Tubes
Jacked Tunnel

Strategies

- Careful Planning
- Innovative Engineering
- Comprehensive Coordination
- Integrated Public Outreach
- Tri-partite Partnership

Mobility Challenge:

Commuter Rail at South Station

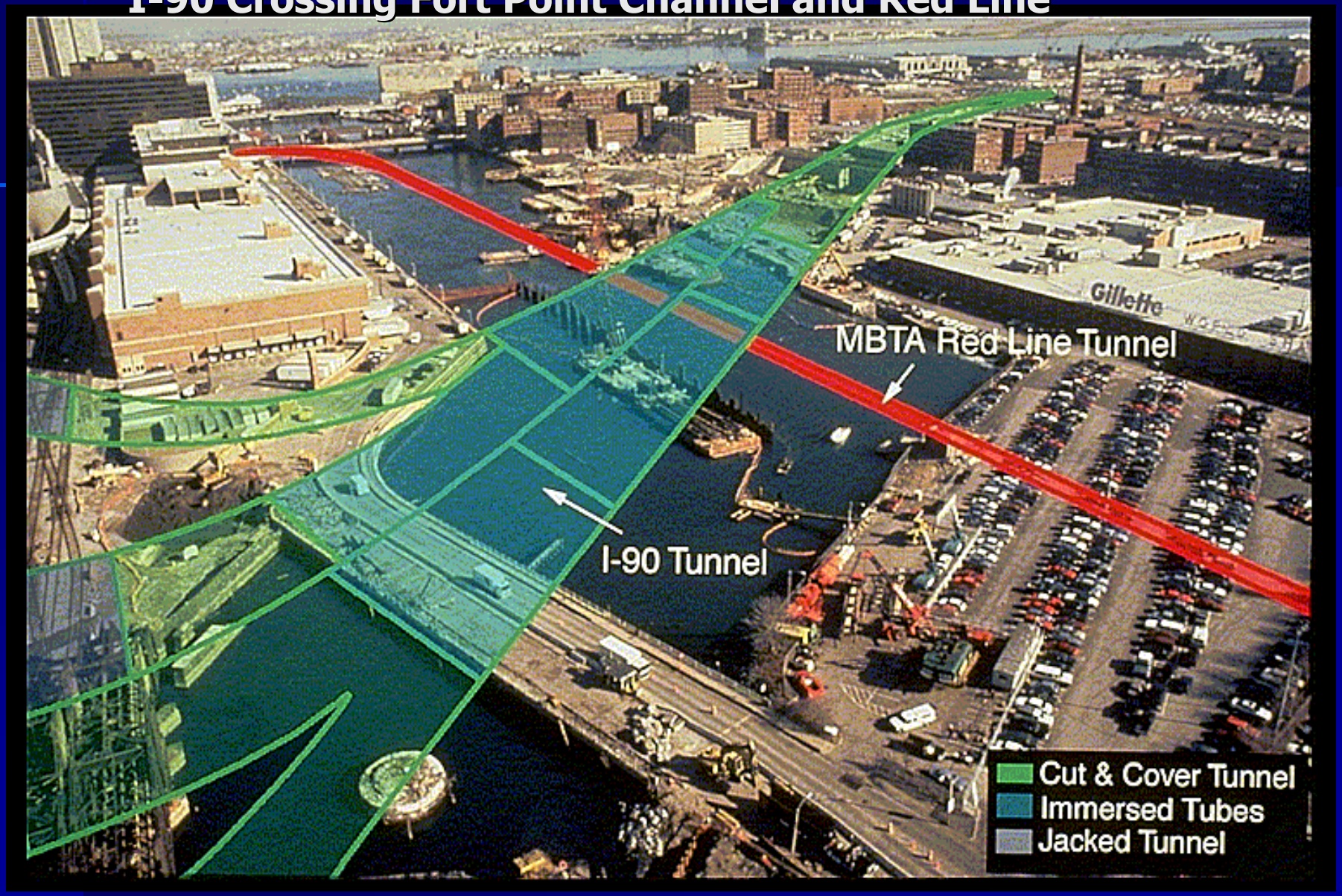

Mobility Challenge:
Commuter Rail at South Station


Strategy:
Commuter Rail at South Station

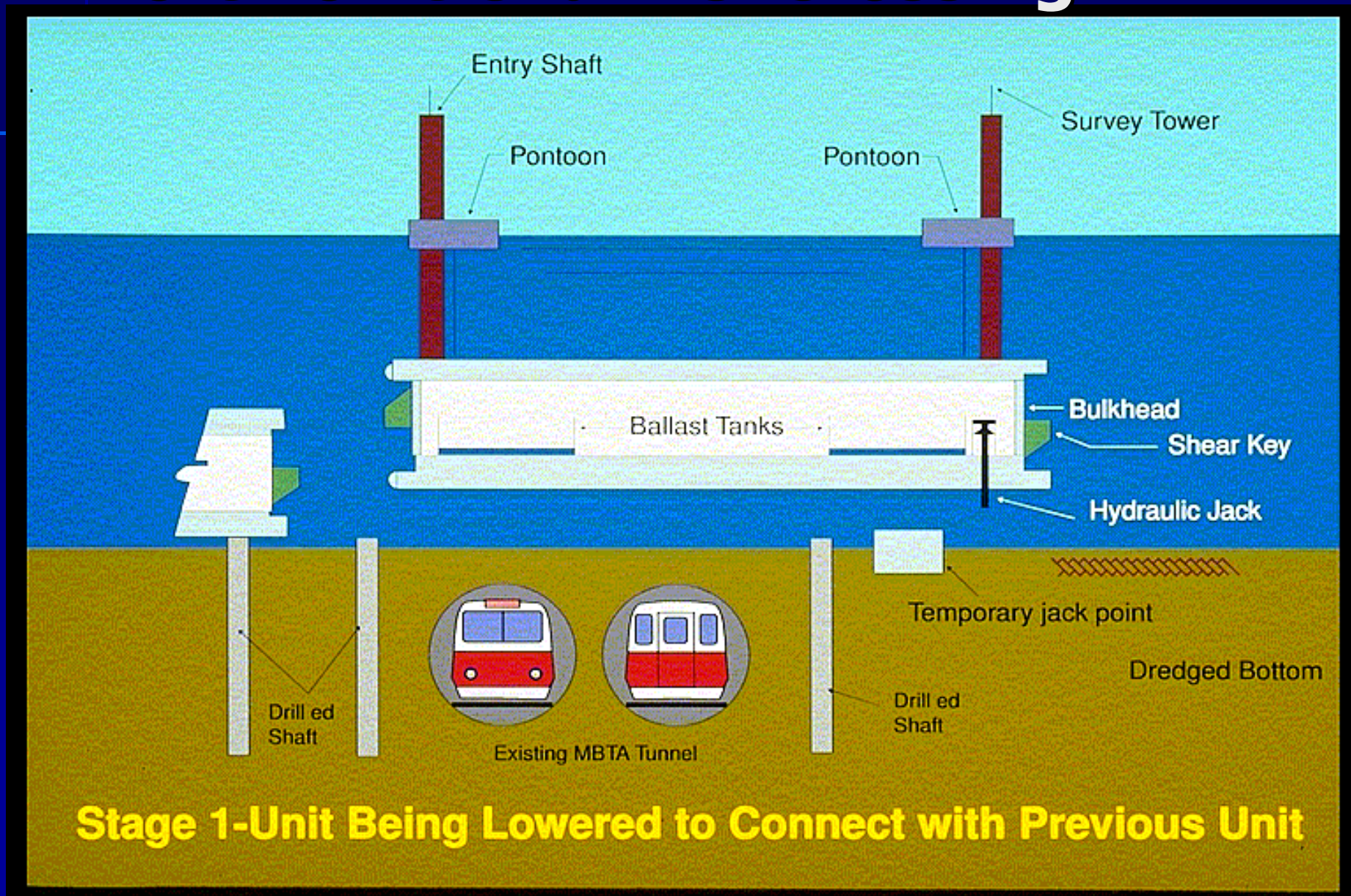
Strategy:

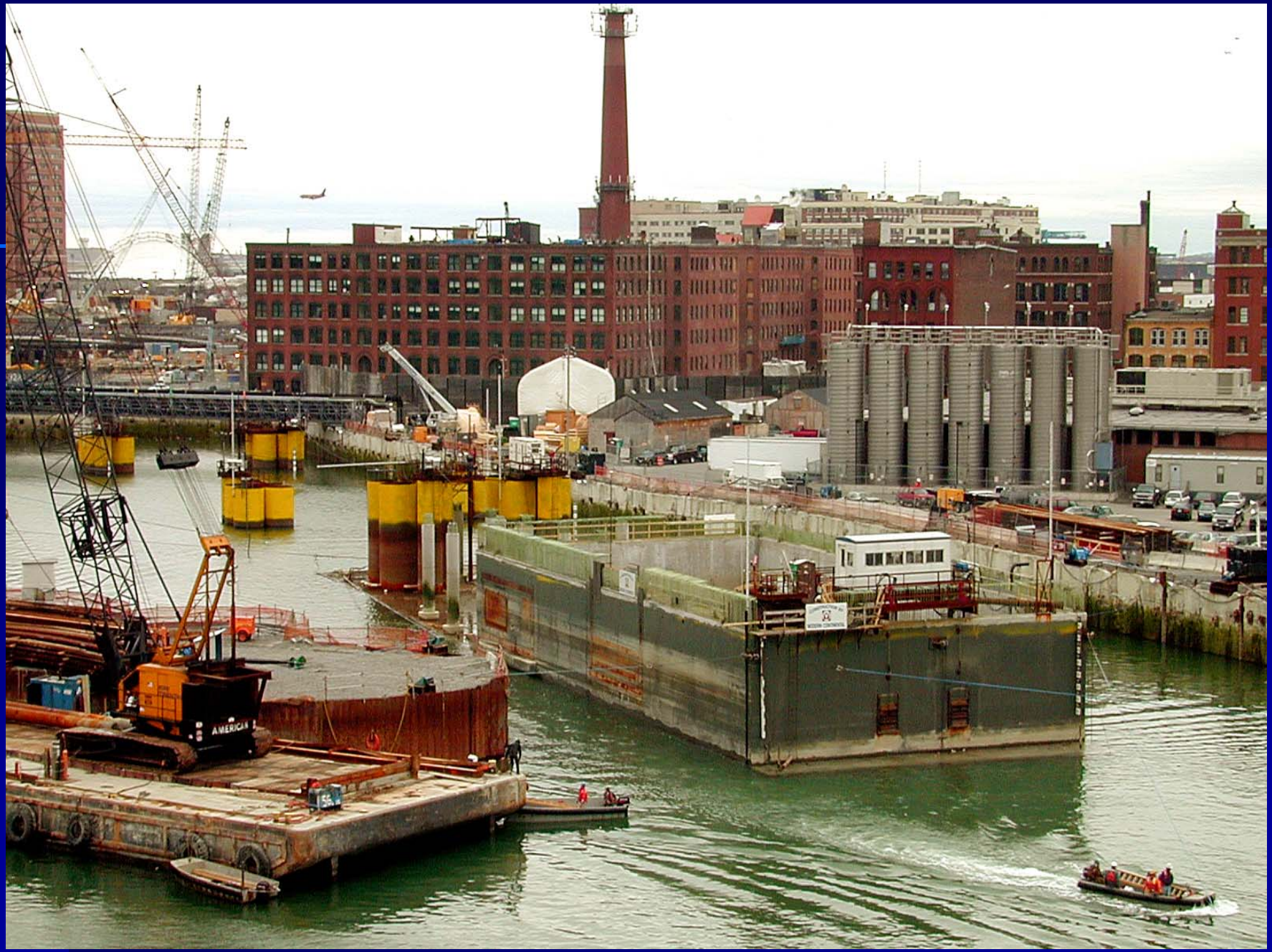
Commuter Rail at South Station

Mobility Challenge:
I-90 Crossing Fort Point Channel and Red Line

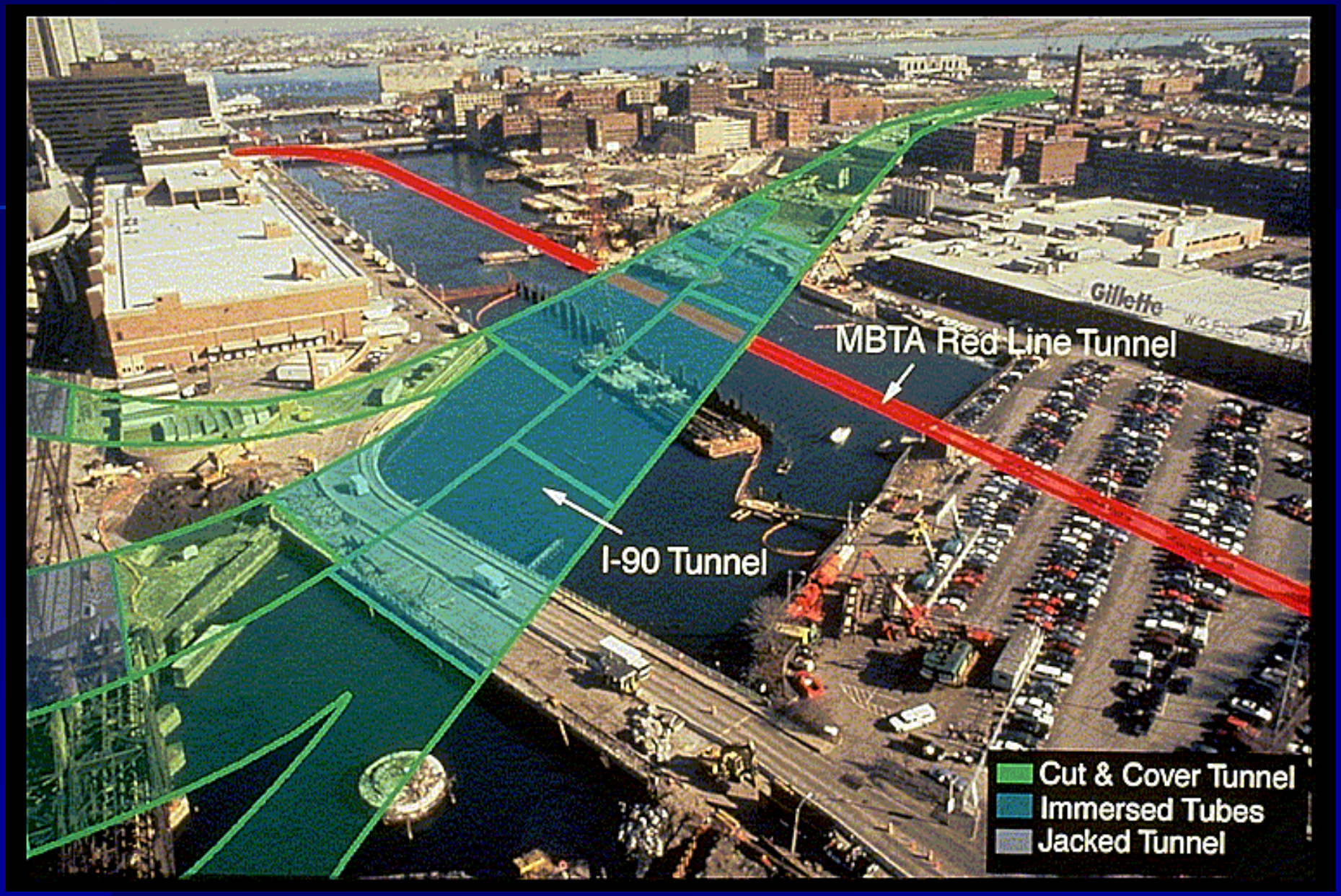


Strategy:
Fort Point Channel Crossing




AMERICAN

Fort Point Channel July 2001


Gillette
MBTA Red Line Tunnel
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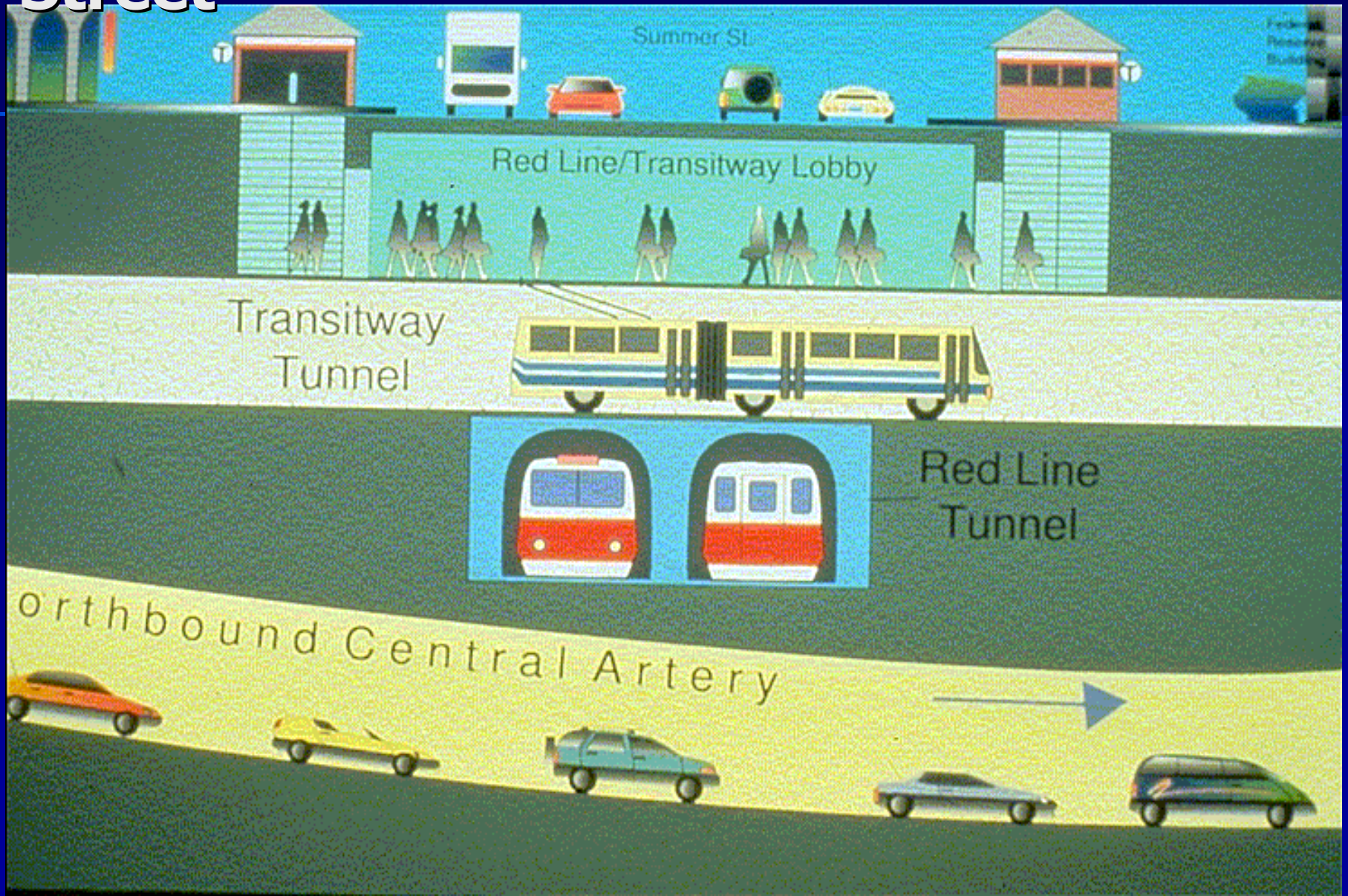
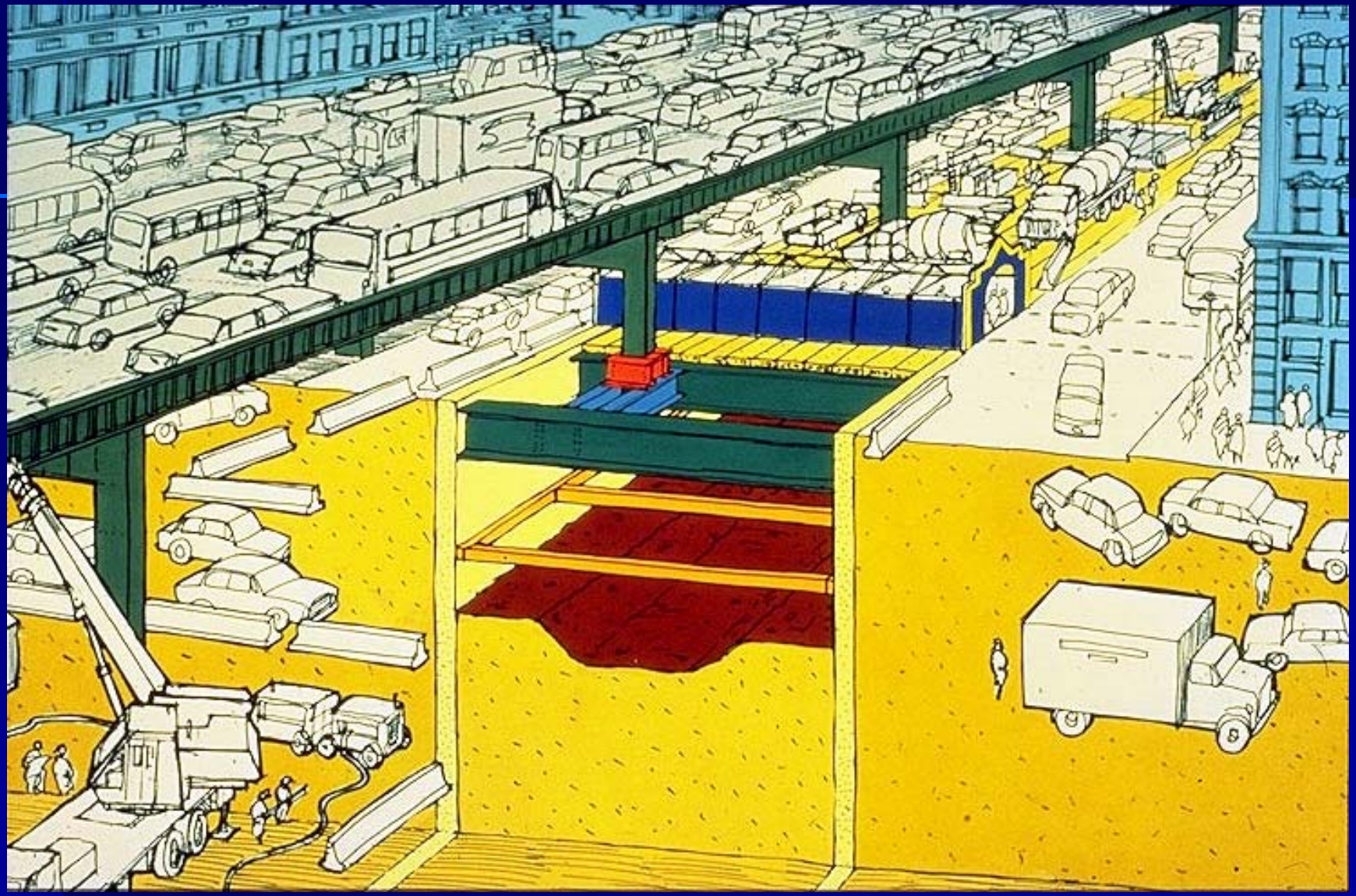
Mobility Challenge:

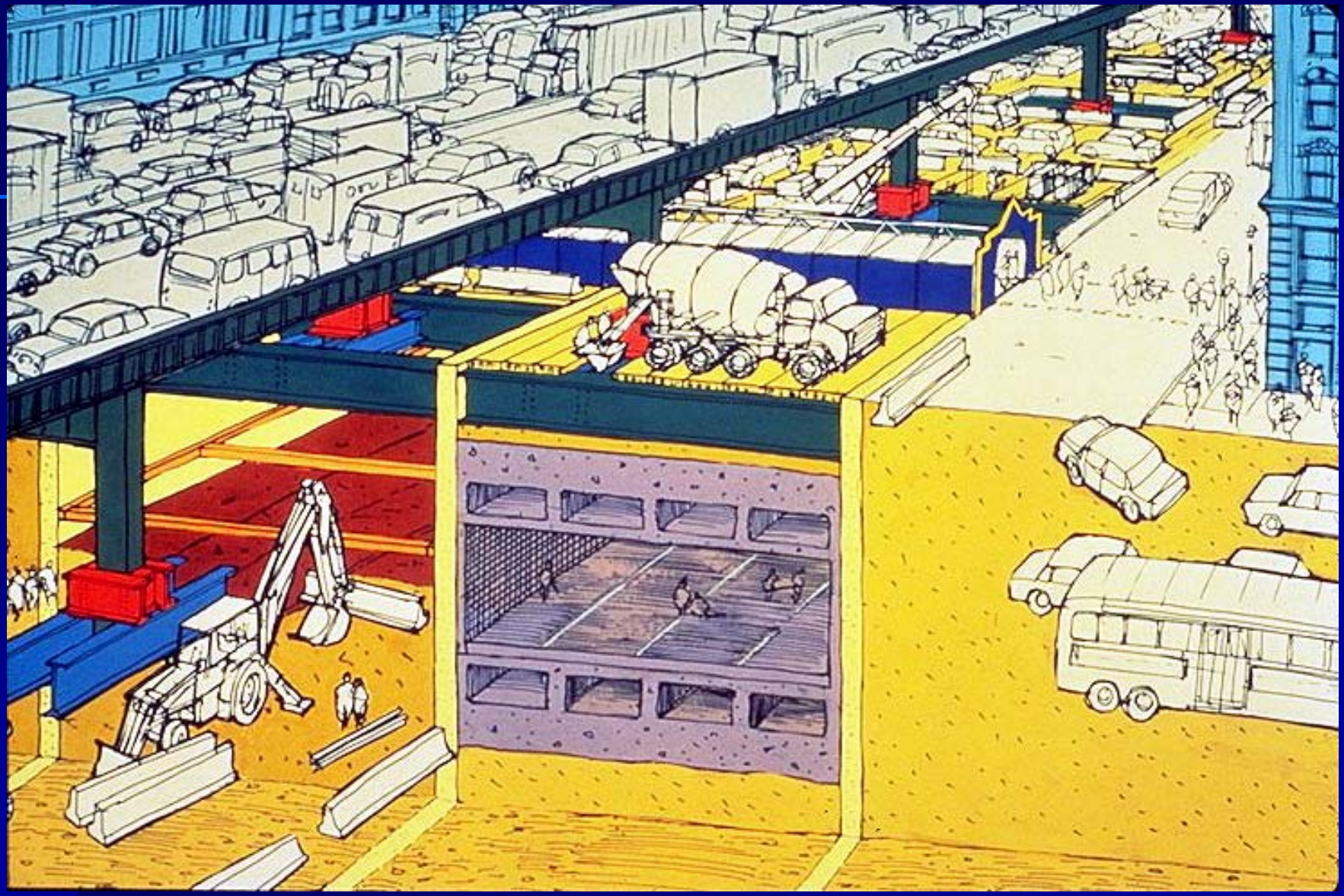
Multilevel Construction Below the Street

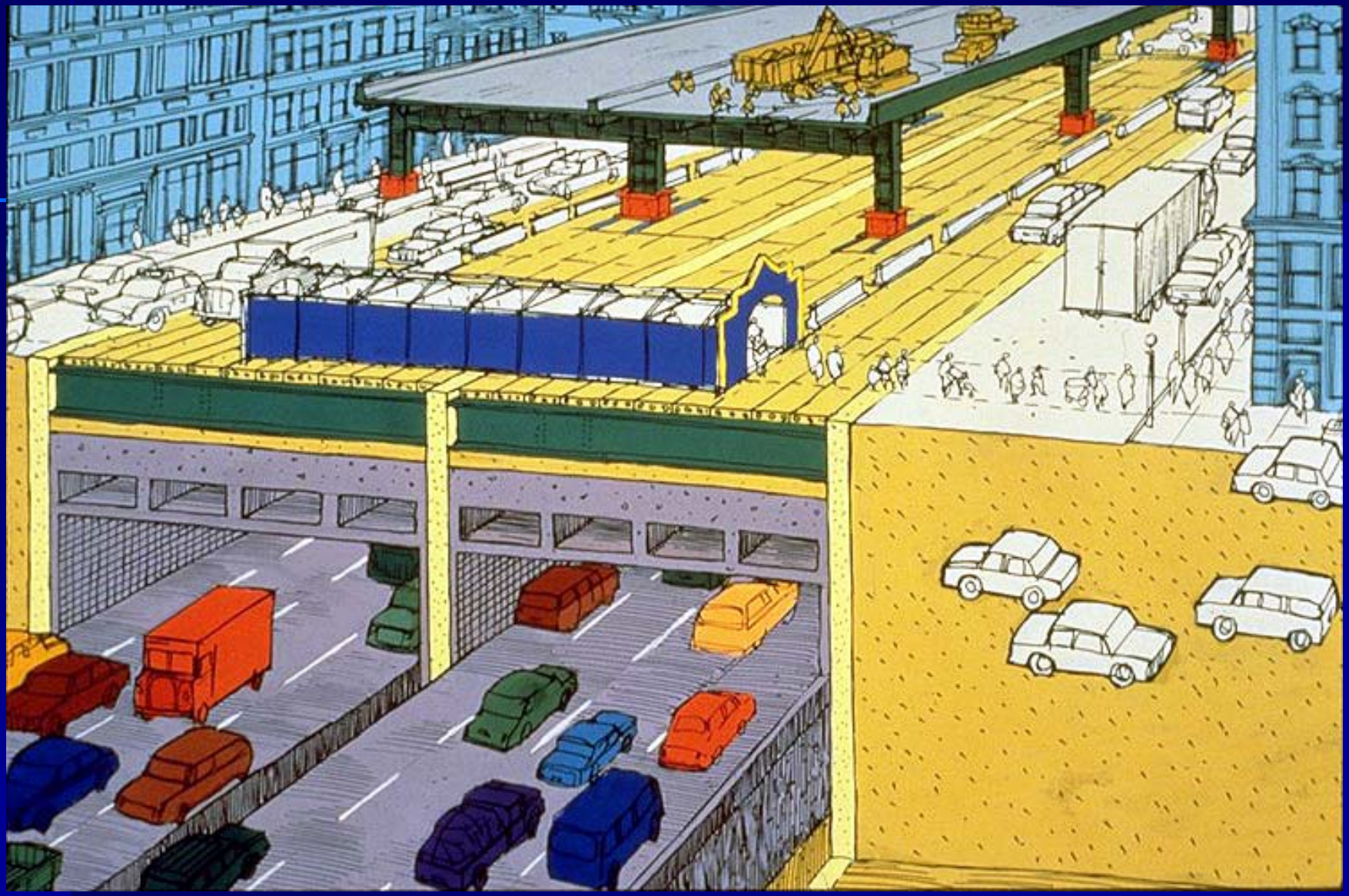


Mobility Challenge:

Operating a Highway Above







Tools and Tactics

- City and State Agreement
- City's Central Artery Team
- Traffic Alerts and Advisories
- Experimentation
- Intelligent Transportation Systems

Tools and Tactics:

City Central Artery Team

- Coordinated Decision Making
- Resources
- Freedom to Innovate
- Customized Permitting

Tools and Tactics:

Intergovernmental Partnerships

Cooperation across Agencies

Tools and Tactics:

Tripartite Planning

- Artery Business Committee
- North End/Waterfront Citizens Advisory Committee
- Tourism Industry

Tools and Tactics:

Planning Traffic Changes

- Multi year traffic management plans
- Adapting to changes in environment
- Manage the contract boundaries
- Traffic alerts and advisories

Revision 3
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Central Artery/Tunnel Project

TRAFFIC SET UP APPROVAL DOCUMENT

DATE: 07/26/04 ADVISORY XX (Extension)
MAJOR ALERT
CONTRACT FILE NO.: MINOR ALERT

PART A – WORK DESCRIPTION

CONSTRUCTION CONTRACT NO.: C17A6 ALERT/ADVISORY NO.: C17A6R64.093

INITIATOR: (Contractor or Re Staff) Modern Continental

CRITERIA REFERENCE: (Paragraph Reference from Attachment A) IV-g

AFFECTED PUBLIC OPERATOR(S) (CHECK APPROPRIATE BOXES) CITY X MTA X MHD MPA MDC OTHER

START DATE: 07/30/04
END DATE: 08/31/04

Hours when Traffic Set-up is in Place: M-F 11:59pm-5:00am
FOR WEEKEND HOURS SEE ADVISORY C17A64.115
HOLIDAY, DNC, AND FLEET CENTER RESTRICTIONS APPLY

DESCRIPTION OF WORK:
Closure and detour of I-93 SB traffic, exiting at ramp CS-P (Exit 23). This is for tunnel construction and fire stand pipe work in the Dewey Square Tunnel. Traffic will be detoured off of I-93 SB on to Purchase Street south bound to Surface Artery south bound. Traffic will then re-enter I-93 SB at ramp JG on Kneeland Street.
No other work on Purchase Street shall be allowed.
24 hour notice to RE's office/BTD

DETOUR REQUIRED: YES X NO (If Yes – Show on Plans)

ATTACHMENTS (List Dwg./Sketch Numbers, Rev. No. and Date):
A54.072 Tunnel.DWG, 8 sheets, dated 2/11/04

PE STAMP REQUIRED: YES X NO

SPECIAL NOTIFICATION (Abutters, Adjacent Contract, etc.) NO YES (Specify)
Adjacent Contracts

APPROVED FOR SUBMITTAL (Contractor): B. Cahill 7/26/04

PART B – MINOR ALERT APPROVAL

	NAME	INITIAL	DATE	PHONE/FAX
CONSTRUCTION:	Bob Krupkosk		7/26/04	(617)951-7604
CITY OF BOSTON:	Frank Johnson		7/26/04	(617)635-2462
AFFECTED PUBLIC OPERATOR(S)				
MDC:				
MHD DISTRICT 4:				
MPA:				
MTA:	J. Carmody			
CONTRACT TRAFFIC ENGINEER:	C Beaulieu		7/26/04	(617)951-8393

CN143 (02 / 02)

Central Artery/Tunnel Project

TRAFFIC SET UP APPROVAL DOCUMENT

DATE: 07/26/04

ADVISORY XX (EXTENSION)
MAJOR ALERT
MINOR ALERT

CONTRACT FILE NO.:

PART A – WORK DESCRIPTION

CONSTRUCTION CONTRACT NO.: C17A6 ALERT/ADVISORY NO.: C17A6R64.093

INITIATOR: (Contractor or Re Staff) Modern Continental

CRITERIA REFERENCE: (Paragraph Reference from Attachment A) IV-9

AFFECTED PUBLIC OPERATOR(S) (CHECK APPROPRIATE BOXES) CITY X MTA X MHD MPA MDC OTHER

START DATE: 07/30/04

END DATE: 08/31/04

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DETOUR REQUIRED: YES X NO (If Yes – Show on Plans)

ATTACHMENTS (List Dwg./Sketch Numbers, Rev. No. and Date):
464.072 Tunnel.DWG, 8 sheets, dated 2/11/04

PE STAMP REQUIRED: YES X NO

SPECIAL NOTIFICATION (Abutters, Adjacent Contract, etc.) NO YES (Specify)
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MTA:	J. Carmody			
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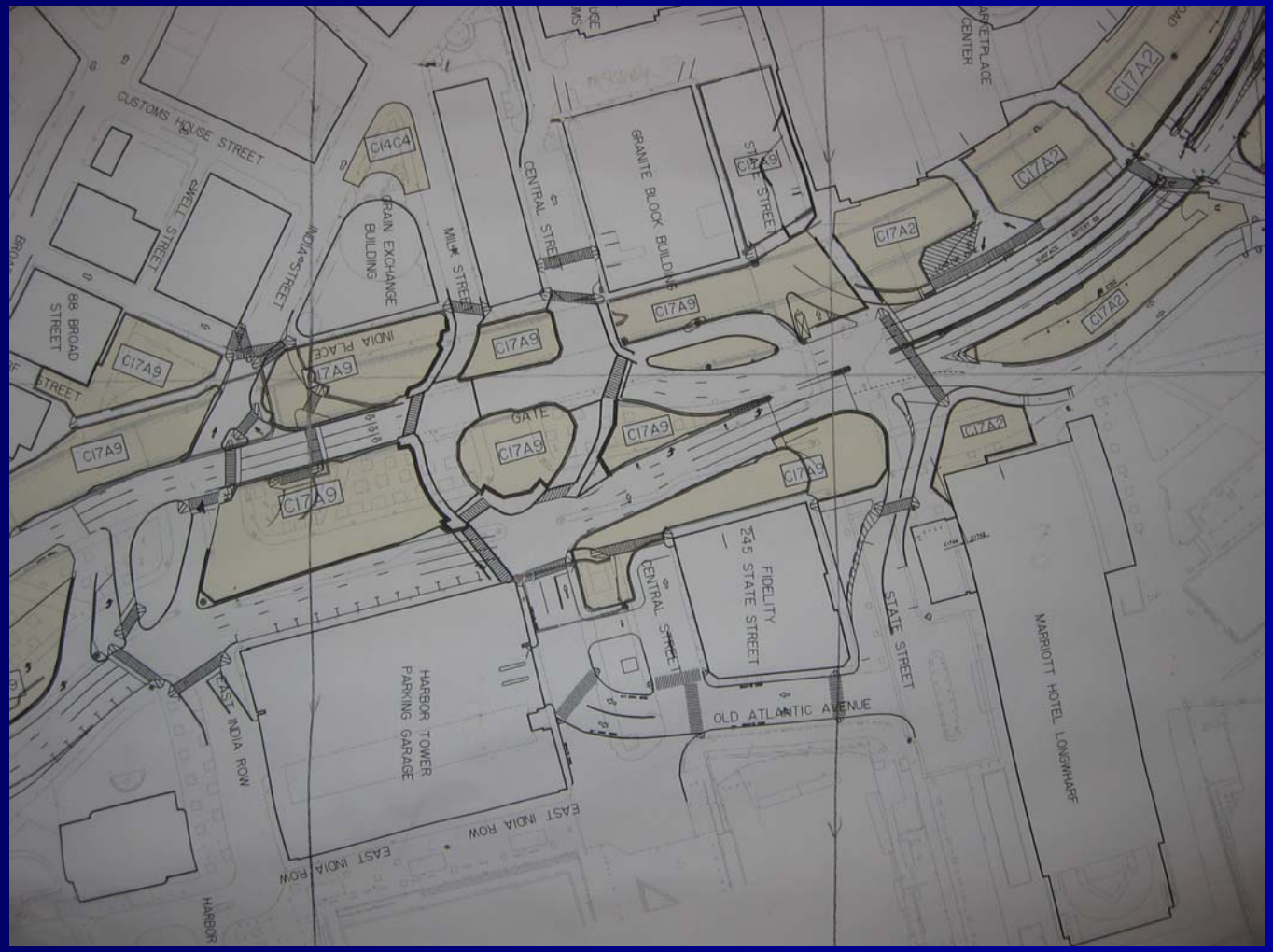
CN143 (02 / 02)

Tools and Tactics:

Manage the Contract Boundaries



Tools and Tactics:
Public Information Plan

- Neighborhoods
- Interest Groups
- Media
- Web Site
- Printed Materials
- Staying Sufficiently Ahead of Change

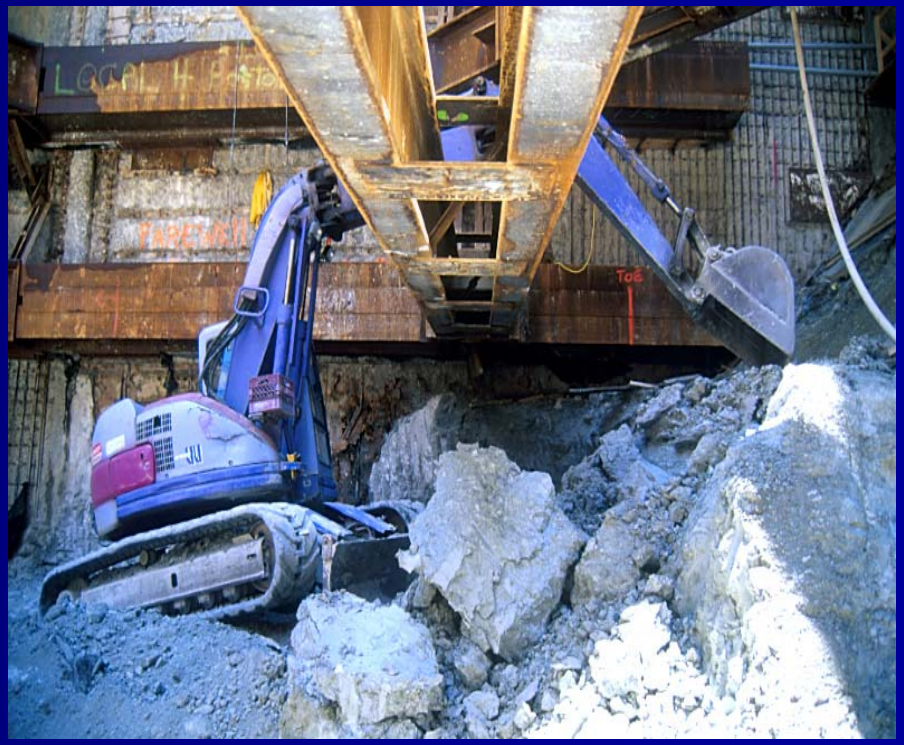
Tools and Tactics:

City's CAT Team in Field

Cooperative Planning and Implementation

Tools and Tactics:

Decking Balances City Life with Construction



Tools and Tactics:

ITS is Powerful Aide

Tools and Tactics:

ITS is Powerful Aide

High Technology Management and Monitoring - 24 hours a day

Tools and Tactics:

Slurry Walls Avoid Disruption

Tools and Tactics:

Police Deployment Plan

Centralized Traffic Details

Tools and Tactics:

Signs Lead the Way

Tools and Tactics:

Visitors Always Welcome

Results

"I can attest personally to the outstanding job... in having created a situation in which traffic coordination and flow are better now than they were before construction began."

--Jerry Schubel, President

Results

Business Never Better

Results

"The Democratic National Convention… would be well served here in Boston."

-- Faneuil Hall MarketPlace

Results

Life goes on amidst

Big Dig construction

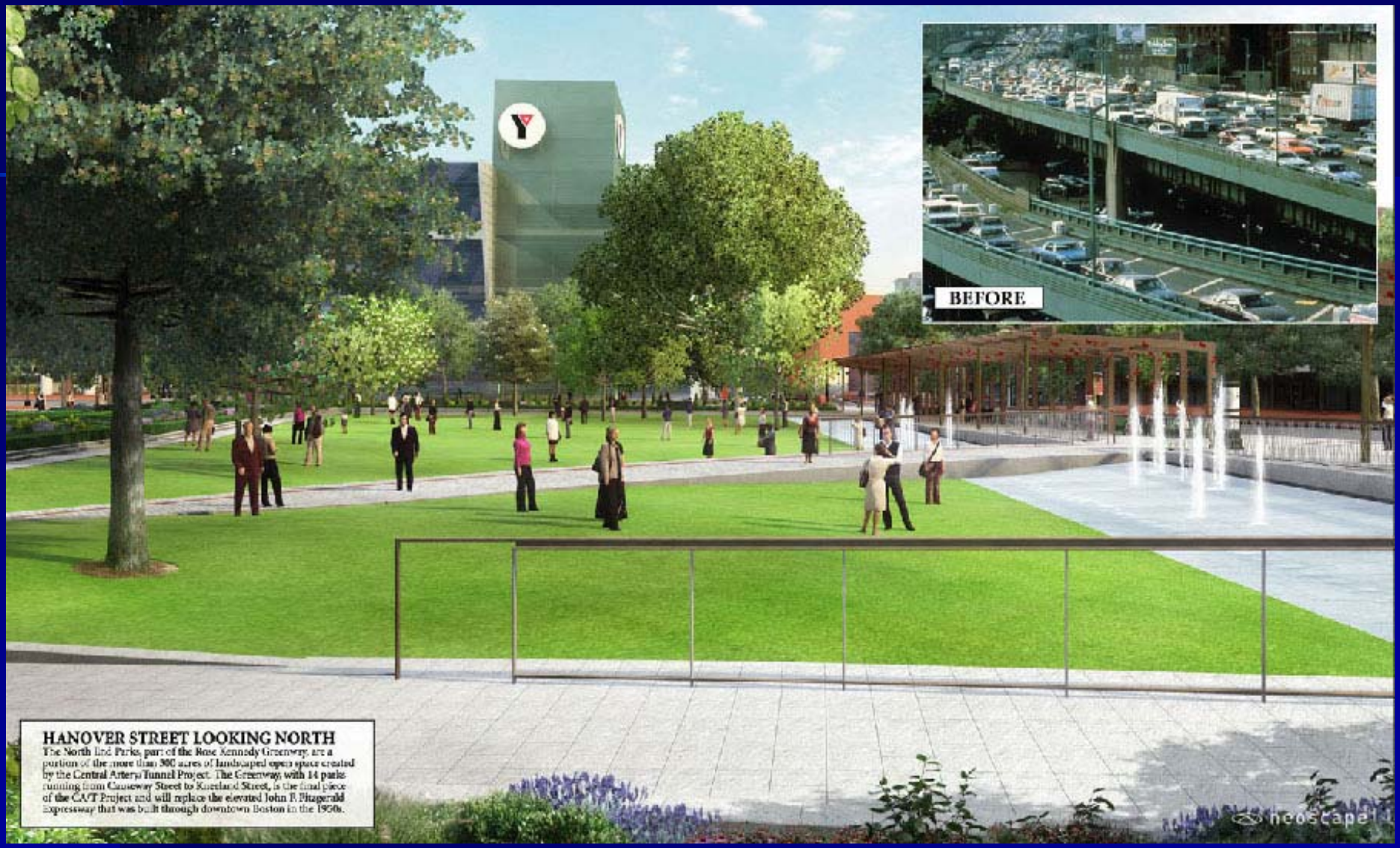
Results:

Traffic Below

Results:

Tranquility Above


BEFORE
NORTH STREET LOOKING NORTH
The North End Parks, part of the Rose Kennedy Greenway, are a portion of the more than 300 acres of landscaped open space created by the Central Artery/Tunnel Project. The Greenway, with 14 parks running from Causeway Street to Kneeland Street, is the final piece of the CA/T Project and will replace the elevated John F. Fitzgerald Expressway that was built through downtown Boston in the 1950s.
neoscape


BEFORE
HANOVER STREET LOOKING NORTH
The North End Parks, part of the Rose Kennedy Greenway, are a portion of the more than 300 acres of landscaped open space created by the Central Artery/Tunnel Project. The Greenway, with 14 parks running from Causeway Street to Kneeland Street, is the final piece of the CA/T Project and will replace the elevated John F. Fitzgerald Expressway that was built through downtown Boston in the 1950s.
neoscape

ESSEX STREET LOOKING SOUTH

Chinatown Park, part of the Rose Kennedy Greenway, is a portion of the more than 300 acres of landscaped open space created by the Central Artery/Tunnel Project. The Greenway, with 14 parks running from Causeway Street to Kneeland Street, is the final piece of the CA/T Project and will replace the elevated John F. Fitzgerald Expressway that was built through downtown Boston in the 1950s.


BEFORE
BEACH STREET LOOKING NORTH
Chinatown Park, part of the Rose Kennedy Greenway, is a portion of the more than 500 acres of landscaped open space created by the Central Artery/Tunnel Project. The Greenway, with 14 parks running from Causeway Street to Kneeland Street, is the final piece of the CA/T Project and will replace the elevated John F. Fitzgerald Expressway that was built through downtown Boston in the 1950s.


BEFORE
EAST INDIA ROW LOOKING NORTH
The Wharf District Parks, part of the Rose Kennedy Greenway, are a portion of the more than 300 acres of landscaped open space created by the Central Artery/Tunnel Project. The Greenway, with 14 parks running from Causeway Street to Kneeland Street, is the final piece of the CA/T Project and will replace the elevated John F. Fitzgerald Expressway that was built through downtown Boston in the 1950s.
neoscape

SUDBURY STREET LOOKING SOUTH

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BEFORE
STATE STREET LOOKING SOUTH
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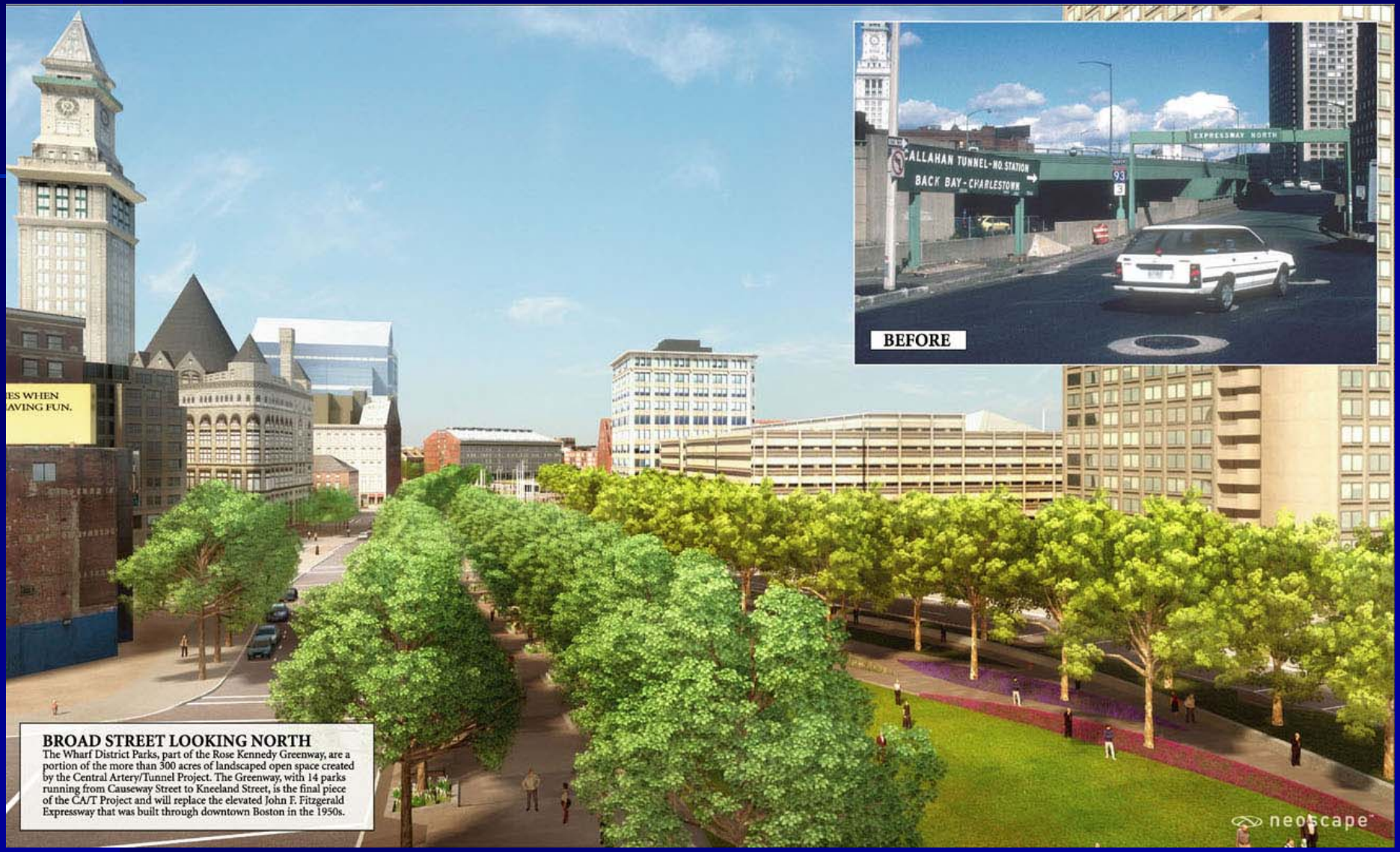
neoscape



BROAD STREET LOOKING NORTH

The Wharf District Parks, part of the Rose Kennedy Greenway, are a portion of the more than 300 acres of landscaped open space created by the Central Artery/Tunnel Project. The Greenway, with 14 parks running from Causeway Street to Kneeland Street, is the final piece of the CA/T Project and will replace the elevated John F. Fitzgerald Expressway that was built through downtown Boston in the 1950s.


BEFORE
MILK STREET LOOKING EAST
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neoscape

The Central Artery/Tunnel Project

The Future is Here